

AMENDMENTS TO THE CLAIMS

Claims 1-63 (Canceled)

64. (new) A method for treating or diagnosing cancer in a subject comprising the step of administering an amount of a mitochondrial uncoupling agent sufficient to the subject to induce whole body intracellular hyperthermia in the subject, wherein the cancer is selected from the group consisting of prostate carcinoma, glioblastoma multiform, Kaposi's sarcoma, peritoneal carcinomatosis, and glioma.

65. (new) The method of claim 64, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol.

66. (new) The method of claim 64, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol, clofazimine, albendazole, cambendazole, oxibendazole, triclabendazole (TCZ), 6-chloro-5-[2,3- dichlorophenoxy]-2- methylthio-benzimidazole, thiobendazole, rafoxanide, bithionol, niclosamide, eutypine, (+)usnic acid, vulpinic acid, atranorin, 2', 5-dichloro-3-t-butyl- 4'-nitrosalicylanilide (S- 13), 3, 4', 5-trichlorosalicylanilide (DCQ, platanetin, 2-trifluoromethyl-4, 5, 6, 7- tetrachlorobenzimidazole (TTFB), 1799, AU-14 21, 3,4,5,6,9,10-hexahydro- 14,16-dihydroxy-3- methyl-1H-2-benzoxacyclotetradecin-1,7(8H)-dione (zearalenone), N,N-bis- (4- trifluoromethylphenyl)-urea, resorcylic acid lactones, 3,5-di-t-butyl- hydroxybenzylidenemalononitrile(SF6847), 2,2,-bis (hexafluoroacetyl) acetone, triphenyl boron, carbonylcyanide 4-trifluoromethoxyphenylhydrazine (FCCP), tributylamine (TBA), carbonyl cyanide 3-chlorophenylhydrazine (CICCP), 1, 3, 6, 8- tetranitrocarbazole, tetrachlorobenzotriazole, 4-iso-octyl-2,6-dinitrophenol(Octyl-DNP), 4- hydroxy-3,5-diido-benzonitrile, mitoguazone (methylglyoxal bisguanylhydrazine), pentachlorophenol (PCP), 5-chloro-2-mercatobenzothiazole (BZT-SH), tribromonitridazole (TBI), N-(3-trifluoromethylphenyl)-anthranilic acid (Flufenamic acid), 4-nitrophenol, 4, 6-dinitrocresol, 4- isobutyl-2,6-dinitrophenol, 2-azido-4-nitrophenol, 5-nitrobenzotriazole, 5-chloro-4-nitrobenzotriazole, tetrachlorobenzotriazole, methyl-o-phenylhydrazine, N-phenylanthranilic acid, N-(3-nitrophenyl)anthranilic acid, N-(2,3-dimethylphenyl) anthranilic acid, mefenamic acid, diflunisal, flufenamix acid, N-(3-chlorophenyl) anthranilic acid, carbonyl cyanide 4-trifluoromethoxyphenylhydrazine (FCCP), SR-4233 (Tirapazamine), atovaquone, carbonyl cyanide 4-(6'-methyl-2'-benzothiazyl)-phenylhydrazine(BT-CCP), ellipticine, olivacine,

ellipticinium, isoellipticine, methyl-0- phenylhydrazonocynoaceticacid,methyl-O-(3-chlorophenylhydrazono) cyanoacetic acid, 2-(3'- chlorophenylhydrazono)-3-oxobutyronitrile, thiosalicylic acid, 2-(2',4- dinitrophenylhydrazono)- 3-oxo-4,4-demethylvaleronitrile, relanium, melipramine, unsaturated fatty acids (up to C14 Optimum), sulflaramid, metabolite perfluorooctane sulfonamide (DESFA), perfluorooctanoate, clofibrate, Wy- 14, 643, ciprofibrate, fluoroalcohols, gramicidin, nigericin, tyrothricin, tyrocidin, valinomycin, alamethicins, harzianin HA V, saturnisporin SA IV, zervarnicins, magainin, cecropins, melittin, hypelcins, suzukacillins, monensins, trichotoxins, antiamoebins, crystal violet, cyanine dyes, cadmium ion, trichosporin-B, desaspidin, ionized calcium (Ca⁺⁺), UCPI-1, UCP-2, UCP-3, PUMP (Plant Uncoupling Mitochondrial Protein), histones, polylysines, A206668-a protein, compound K23187 or a combination thereof.

67. (new) The method of claim 64, wherein the mitochondrial uncoupling agent is a conjugate comprising 2,4 dinitrophenol.

68. (new) The method of claim 64, wherein an animal is administered the mitochondrial uncoupling agent and a separate medication is administered, wherein the second medication increases the overall metabolic rate of the animal, the metabolic rate of a specific target tissue in the animal, or an increase in free radical flux.

69. (new) The method of claim 68, wherein the second medication is selected from the group consisting of glucagon, arbutamine, dobutamine, vasopressin, glutamine, proline, octanoate, methylene blue (tetramethylthionine), ubiquinone, menadione, hematoporphyrin, polyunsaturated fatty acids, monounsaturated fatty acids and a combination thereof.

70. (new) The method of claim 69, wherein the polyunsaturated fatty acids are alpha-linolenic, gamma-linolenic, arachidonic, eicosapentaenoic, docosahexenoic, or cis-parinaric fatty acids.

71. (new) The method of claim 69, wherein the monounsaturated fatty acids are oleic, erucic, phenazine methosulfate, 2,6- dichlorophenolindophenol, coenzyme Q1, coenzyme Q2, duroquinone or decylubiquinone.

72. (original) The method of claim 64, wherein the induced intracellular hyperthermia involve the induction of heat shock proteins.

73. (original) The method of claim 64 further comprising administering an anti-cancer agent.

74. (original) The method of claim 73, wherein said anti-cancer agent is selected from the group consisting of metholtrexate, mercaptopuorine, fluorouracil, cytarabine, thioguanine, azacitidine, etoposide (VP-16) and teniposide (VM-26), vincristine, vinblastine, paclitaxel, busulfan, cyclophosphamide, mechlorethamine, melphalan, altaretamine, ifosfamide, cisplatin, dacarbazine, procarbazine, lomustine, carmustine, lomustine, semustine, chlorambucil, thiotepa, carboplatin; flutamide, prednisone, ethinyl estradiol, diethylstilbestrol, hydroxyprogesterone caproate, medroxyprogesterone, megestrolacetate, testosterone, fluoxymesterone, diiodothyroidine, triiodothyroidine, tetraiodothyroidine, aromatase inhibitor, amino glutethimide, octreotide, goserilin acetate, leuprolide, interferon alpha-2a, interferon alpha-2b, interferon-gamma, interferon-beta, interleukin-1, interleukin-2, interleukin-4, interleukin-10, anti-HER-2/neu humanized antibody, tumor necrosis factor, granulocyte-macrophage colony-stimulating factor, macrophage-colony- stimulating factor, phenylacetates, retinoic acids, leukotrienes, and thromboxanes.

75. (new) The method of claim 64 further comprising administering radiation.

76. (new) A method for treating or diagnosing infections in a subject comprising the step of administering an amount of a mitochondrial uncoupling agent sufficient to the subject to induce whole body intracellular hyperthermia in the subject, wherein the infections result from *Borrelia burgdorferi*, *Mycobacterium leprae*, *Treponema pallidum*, HIV, hepatitis C, herpes virus or papillomavirus.

77. (new) The method of claim 76, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol.

78. (new) The method of claim 76, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol, clofazimine, albendazole, cambendazole, oxibendazole, triclabendazole (TCZ), 6-chloro-5-[2,3- dichlorophenoxy]-2- methylthio-benzimidazole, thiobendazole, rafoxanide,

bithionol, niclosamide, eutypine, (+)usnic acid, vulpinic acid, atranorin, 2', 5-dichloro-3-t-butyl- 4'-nitrosalicylanilide (S- 13), 3, 4', 5-trichlorosalicylanilide (DCQ, platanetin, 2-trifluoromethyl-4, 5, 6, 7- tetrachlorobenzimidazole (TTFB), 1799, AU-14 21, 3,4,5,6,9,10-hexahydro- 14,16-dihydroxy-3- methyl-IH-2-benzoxacyclotetradecin-1,7(8H)-dione (zearalenone), N,NI-bis- (4- trifluoromethylphenyl)-urea, resorcylic acid lactones, 3,5-di-t-butyl- hydroxybenzylidenemalononitrile(SF6847), 2,2,-bis (hexafluoroacetyl) acetone, triphenyl boron, carbonylcyanide 4-trifluoromethoxyphenylhydrazine (FCCP), tributylamine (TBA), carbonyl cyanide 3-chlorophenylhydrazine (CICCP), 1, 3, 6, 8- tetranitrocarbazole, tetrachlorobenzotriazole, 4-iso-octyl-2,6-dinitrophenol(Octyl-DNP), 4- hydroxy-3,5-diidobenzonitrile, mitoguazone (methylglyoxal bisguanylhyazone), pentachlorophenol (PCP), 5-chloro-2-mercatobenzothiazole (BZT-SH), tribromoirnidazole (TBI), N-(3-trifluoromethylphenyl)-anthranilic acid (Flufenamic acid), 4-nitrophenol, 4, 6-dinitroresol, 4- isobutyl-2,6-dinitrophenol, 2-azido-4-nitrophenol, 5-nitrobenzotriazole, 5-chloro-4-nitrobenzotriazole, tetrachlorobenzotriazole, methyl-o-phenylhydrazine, N-phenylanthranilic acid, N-(3-nitrophenyl)anthranilic acid, N-(2,3-dimethylphenyl) anthranilic acid, mefenamic acid, diflunisal, flufenamix acid, N-(3-chlorophenyl) anthranilic acid, carbonyl cyanide 4-trifluoromethoxyphenylhydrazine (FCCP), SR-4233 (Tirapazamine), atovaquone, carbonyl cyanide 4-(6'-methyl-2'-benzothiazyl)-phenylhydrazine(BT-CCP), ellipticine, olivacine, ellipticinium, isoellipticine, methyl-0- phenylhydrazonocynoaceticacid,methyl-O-(3-chlorophenylhydrazono) cyanoacetic acid, 2-(3'- chlorophenylhydrazono)-3-oxobutyronitrile, thiosalicylic acid, 2-(2',4- dinitrophenylhydrazono)- 3-oxo-4,4-demethylvaleronitrile, relanium, melipramine, unsaturated fatty acids (up to C14 Optimum), sulflaramid, metabolite perfluorooctane sulfonamide (DESFA), perfluorooctanoate, clofibrate, Wy- 14, 643, ciprofibrate, fluoroalcohols, gramicidin, nigericin, tyrothricin, tyrocidin, valinomycin, alamethicins, harzianin HA V, saturnisporin SA IV, zervarnicins, magainin, cecropins, melittin, hypelcins, suzukacillins, monensins, trichotoxins, antiamoebins, crystal violet, cyanine dyes, cadmium ion, trichosporin-B, desaspidin, ionized calcium (Ca⁺⁺), UCPI-1, UCP-2, UCP-3, PUMP (Plant Uncoupling Mitochondrial Protein), histones, polylysines, A206668-a protein, compound K23187 or a combination thereof.

79. (new) The method of claim 76, wherein the mitochondrial uncoupling agent is a conjugate comprising 2,4 dinitrophenol.

80. (new) The method of claim 76, wherein an animal is administered the mitochondrial uncoupling agent and a separate medication is administered, wherein the second medication increases the overall metabolic rate of the animal, the metabolic rate of a specific target tissue in the animal, or an increase in free radical flux.

81. (new) The method of claim 80, wherein the second medication is selected from the group consisting of glucagon, arbutamine, dobutamine, vasopressin, glutamine, proline, octanoate, methylene blue (tetramethylthionine), ubiquinone, menadione, hematoporphyrin, polyunsaturated fatty acids, monounsaturated fatty acids and a combination thereof.

82. (new) The method of claim 80, wherein the polyunsaturated fatty acids are alpha-linolenic, gamma-linolenic, arachidonic, eicosapentaenoic, docosahexenoic, or cis-parinaric fatty acids.

83. (new) The method of claim 81, wherein the monounsaturated fatty acids are oleic, erucic, phenazine methosulfate, 2,6- dichlorophenolindophenol, coenzyme Q1, coenzyme Q2, duroquinone or decylubiquinone.

84. (original) The method of claim 76, wherein the induced intracellular hyperthermia involve the induction of heat shock proteins.

85. (original) The method of claim 76 further comprising administering an anti-bacterial agent.

86. The method of claim 85, wherein the anti-bacterial agent is a betalactam, macrolide, tetracycline, aminoglycoside, peptide antibiotic, sulfonamide, quinolone, nucleoside, oligosaccharide, polyene, or nitrofur.

87. The method of claim 76 further comprising administering an antiviral agent.

88. The method of claim 87, wherein the antiviral agent is an interferon, amantadine, rimantadine, arildone, ribavirin, acyclovir, abacavir, vidarabine (ARA-A) 9-1,3-dihydroxy-2-propoxy methylguanine (DHPG), ganciclovir, enviroxime, foscarnet, amplitgen, podophyllotoxin, 2,3-dideoxythymidine (ddQ), iododeoxyuridine (IDU), trifluorothymidine

(TIFT), dideoxyMosiine (ddi), d4T, 3TC, zidovudine, efavirenz, indinavir, saquinavir, ritonavir, nelfinavir, or amprenavir.

89. (new) A method for treating or diagnosing infestations in a subject comprising the step of administering an amount of a mitochondrial uncoupling agent sufficient to the subject to induce whole body intracellular hyperthermia in the subject, wherein the infestations result from *Candida*, *Sporothrix schenckii*, *Histoplasma*, *paracoccidioides*, *Aspergillus*, *Leishmania*, malaria, *acanthamoeba* or cestodes.

90. (new) The method of claim 89 further comprising administering an antifungal agent.

91. (new) The method of claim 90, wherein the antifungal is Amphotericin B, Griseofulvin, Fluconazole (Diflucan), Itraconazole, 5 fluoro-cytosine (Flutocytosine, 5-FC), Ketatoconazole or Miconazole.

92. (new) The method of claim 89, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol.

93. (new) The method of claim 89, wherein the mitochondrial uncoupling agent is 2,4 dinitrophenol, clofazimine, albendazole, cambendazole, oxibendazole, triclabendazole (TCZ), 6-chloro-5-[2,3- dichlorophenoxy]-2- methylthio-benzimidazole, thiobendazole, rafoxanide, bithionol, niclosamide, eutypine, (+)usnic acid, vulpinic acid, atranorin, 2', 5-dichloro-3-t-butyl- 4'-nitrosalicylanilide (S- 13), 3, 4', 5-trichlorosalicylanilide (DCQ, platanetin, 2-trifluoromethyl-4, 5, 6, 7- tetrachlorobenzimidazole (TTFB), 1799, AU-14 21, 3,4,5,6,9,10-hexahydro- 14,16-dihydroxy-3- methyl-IH-2-benzoxacyclotetradecin-1,7(8H)-dione (zearalenone), N,NI-bis- (4- trifluoromethylphenyl)-urea, resorcylic acid lactones, 3,5-di-t-butyl- hydroxybenzylidenemalononitrile(SF6847), 2,2,-bis (hexafluoroacetyl) acetone, triphenyl boron, carbonylcyanide 4-trifluoromethoxyphenylhydrazone (FCCP), tributylamine (TBA), carbonyl cyanide 3-chlorophenylhydrazone (CICCP), 1, 3, 6, 8- tetranitrocarbazole, tetrachlorobenzotriazole, 4-iso-octyl-2,6-dinitrophenol(Octyl-DNP), 4- hydroxy-3,5-diidobenzonitrile, mitoguazone (methylglyoxal bisguanylhyazone), pentachlorophenol (PCP), 5-chloro-2-mercatobenzothiazole (BZT-SH), tribromoimidazole (TBI), N-(3-

trifluoromethylphenyl)-anthranilic acid (Flufenamic acid), 4-nitrophenol, 4, 6-dinitrocresol, 4- isobutyl-2,6-dinitrophenol, 2-azido-4-nitrophenol, 5-nitrobenzotriazole, 5-chloro-4-nitrobenzotriazole, tetrachlorobenzotriazole, methyl-o-phenylhydrazone, N-phenylanthranilic acid, N-(3-nitrophenyl)anthranilic acid, N-(2,3-dimethylphenyl) anthranilic acid, mefenamic acid, diflunisal, flufenamix acid, N-(3-chlorophenyl) anthranilic acid, carbonyl cyanide 4-trifluoromethoxyphenylhydrazone (FCCP), SR-4233 (Tirapazamine), atovaquone, carbonyl cyanide 4-(6'-methyl-2'-benzothiazyl)-phenylhydrazone(BT-CCP), ellipticine, olivacine, ellipticinium, isoellipticine, methyl-O- phenylhydrazonocynoaceticacid,methyl-O-(3-chlorophenylhydrazono) cyanoacetic acid, 2-(3'- chlorophenylhydrazono)-3-oxobutyronitrile, thiosalicylic acid, 2-(2',4- dinitrophenylhydrazono)- 3-oxo-4,4-demethylvaleronitrile, relanium, melipramine, unsaturated fatty acids (up to C14 Optimum), sulflaramid, metabolite perfluorooctane sulfonamide (DESFA), perfluorooctanoate, clofibrate, Wy- 14, 643, ciprofibrate, fluoroalcohols, gramicidin, nigericin, tyrothricin, tyrocidin, valinomycin, alamethicins, harzianin HA V, saturnisporin SA IV, zervarnicins, magainin, cecropins, melittin, hypelcins, suzukacillins, monensins, trichotoxins, antiamoebins, crystal violet, cyanine dyes, cadmium ion, trichosporin-B, desaspidin, ionized calcium (Ca⁺⁺), UCPI-1, UCP-2, UCP-3, PUMP (Plant Uncoupling Mitochondrial Protein), histones, polylysines, A206668-a protein, compound K23187 or a combination thereof.

94. (new) The method of claim 89, wherein the mitochondrial uncoupling agent is a conjugate comprising 2,4 dinitrophenol.

95. (new) The method of claim 89, wherein an animal is administered the mitochondrial uncoupling agent and a separate medication is administered, wherein the second medication increases the overall metabolic rate of the animal, the metabolic rate of a specific target tissue in the animal, or an increase in free radical flux.

96. (new) The method of claim 95, wherein the second medication is selected from the group consisting of glucagon, arbutamine, dobutamine, vasopressin, glutamine, proline, octanoate, methylene blue (tetramethylthionine), ubiquinone, menadione, hematoporphyrin, polyunsaturated fatty acids, monounsaturated fatty acids and a combination thereof.

97. (new) The method of claim 96, wherein the polyunsaturated fatty acids are alpha-linolenic, gamma-linolenic, arachidonic, eicosapentaenoic, docosahexenoic, or cis-parinaric fatty acids.

98. (new) The method of claim 96, wherein the monounsaturated fatty acids are oleic, erucic, phenazine methosulfate, 2,6- dichlorophenolindophenol, coenzyme Q1, coenzyme Q2, duroquinone or decylubiquinone.

99. (original) The method of claim 89, wherein the induced intracellular hyperthermia involve the induction of heat shock proteins.